

EXHIBIT C

Document 1

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Viewer Component Architecture

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1 Introduction

The Viewer is a software component that enables the user to analyze data (pre-processed using the Analyzer component) using OLAP as well as data mining techniques. It can be thought of as a software "IC" that can be plugged into an existing program by a developer. The architecture of the Viewer component is shown in Figure 1. As can be seen, the Viewer does not have a user interface of its own. Thus, it can be plugged into the user interface of an existing program, or a customized user interface can be designed exclusively for it. Either way, it provides a standard set of interfaces so that its functionality can be made use of.

2 Viewer Modules

The Viewer has 6 main modules. These are described in brief below:

2.1 Query Processor Module

The Query Processor Module is responsible for processing user queries. These could be of the following types:

- Data Mining Queries
For example, "show me all patterns involving green shirts"
- OLAP Queries
For example, "What was the revenue from green shirts last winter?"
- Clique Queries
- Status Queries
For example, "Get Status", or "Got Last Error"

The Query Processor Module passes these queries on to the Query Handler Module.

2.2 Data Processor Module

The Data Processor Module is responsible for importing the pre-processed data output by the Analyzer Component.

2.3 Query Handler Module

The Query Handler Module acts as the "CPU" of the Viewer Component. It performs the following tasks:

- Sets up internal data structures according to the inputs provided by the Query Processor Module
- Initiates data import by the Data Processor Module
- Runs queries on the data in a separate thread of execution
- Passes results of queries on to the Result Generator Module

- Returns result text obtained from the Result Generator Module to the user

2.4 Result Generator Module

The Result Generator Module is responsible for forming textual descriptions of query results. It formulates these descriptions based on the query results obtained from the Query Handler Module, and the Grammar description obtained from the Data Processor Module.

2.5 Error Handler Module

The Error Handler Module handles all errors encountered by the other modules. It also provides a textual description of the last error encountered. It is responsible for graceful exit, in case of a fatal error.

2.6 Status Handler Module

The Status Handler Module is responsible for providing status reports to the user. The other modules constantly feed this module with the latest status of their operations

Figure 1: Viewer Component Architecture

